Website FAQ April 2010

Polymer Aluminum Electrolytic Capacitors **“ECAS Series”**

muRata
Innovator in Electronics

Q: What is a Murata polymer aluminum electrolytic capacitor?

Q: Is the ECAS series a multi-layer device?

Q: What are the advantages of using polymer aluminum capacitors vs other non-ceramic technologies?

Q: What are the advantages of using polymer capacitors vs MLCC?

Q: Do polymer electrolytic capacitors have polarity?

Q: Can the ECAS series be used in AC circuits?

Q: Is voltage derating required for ECAS capacitors?

Q: What is the operating temperature range of Murata's ECAS series?

Q: What is the capacitance and voltage range of the ECAS series?

Q: Can the ECAS series be exposed to reflow and wave soldering environments?

Q: Are there special handling and storage conditions required for the ECAS series?

Q: Do polymer electrolytic capacitors experience the same capacitance changes under applied voltage like MLCCs?

Q: What is the average reel size of the ECAS series?

Q: Will the ECAS product continue to follow Murata's 18 digit global part numbering (GPN) system?

Q: Why did Murata enter the polymer capacitor business after being in MLCCs for so long?

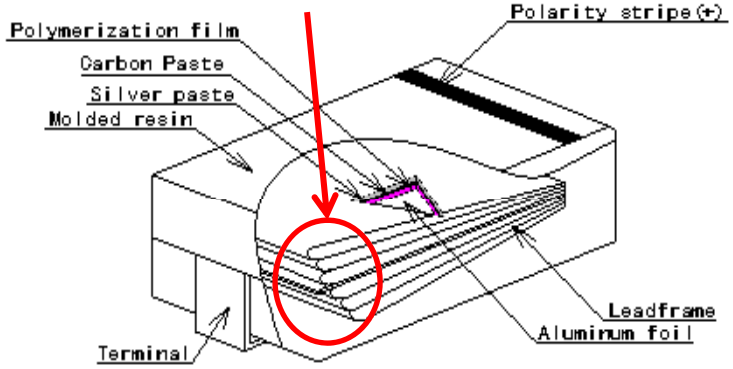
Murata Polymer Capacitor – Website FAQ

Q: What is a Murata polymer aluminum electrolytic capacitor?

A: There are two kinds of polymer aluminum capacitors: the “surface mount” type (also known as H-Chip), which uses a multilayer aluminum foil structure, and the “Can” type (also known as V-Chip), which consists of a rolled aluminum structure. Murata's H-Chip type (ECAS Series) is designed with a resin molded case structure, which utilizes multilayer aluminum foil for anode and solid conductive polymer for negative cathode.

〈Al Capacitor〉

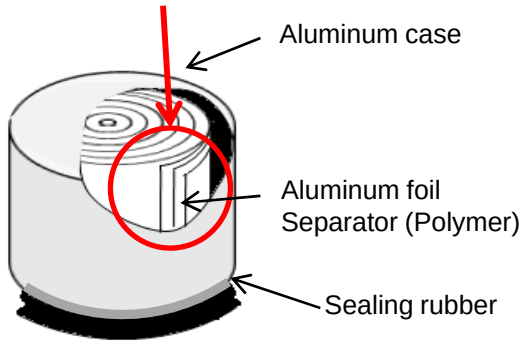
Aluminum / Multilayer Structure



Multilayer type (H-Chip)

H-Chip : Horizontal Chip

Aluminum /Rolled Structure



Can type (V-Chip)

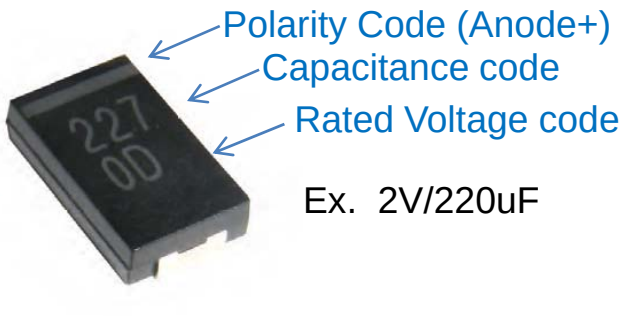
V-Chip : Vertical Chip

Murata Polymer Capacitor – Website FAQ

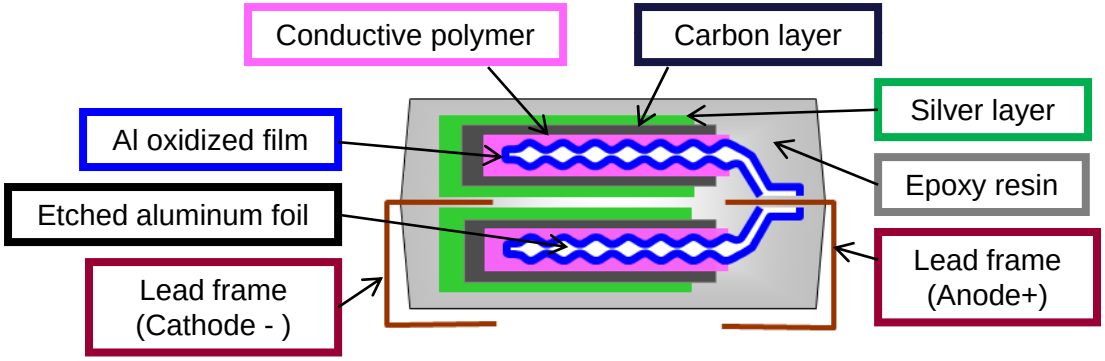
Q: Is the ECAS series a multi-layer device?

A: Yes. The ECAS series utilizes multilayer aluminum foil for anode and solid conductive polymer for negative cathode.

〈 **Appearance** 〉



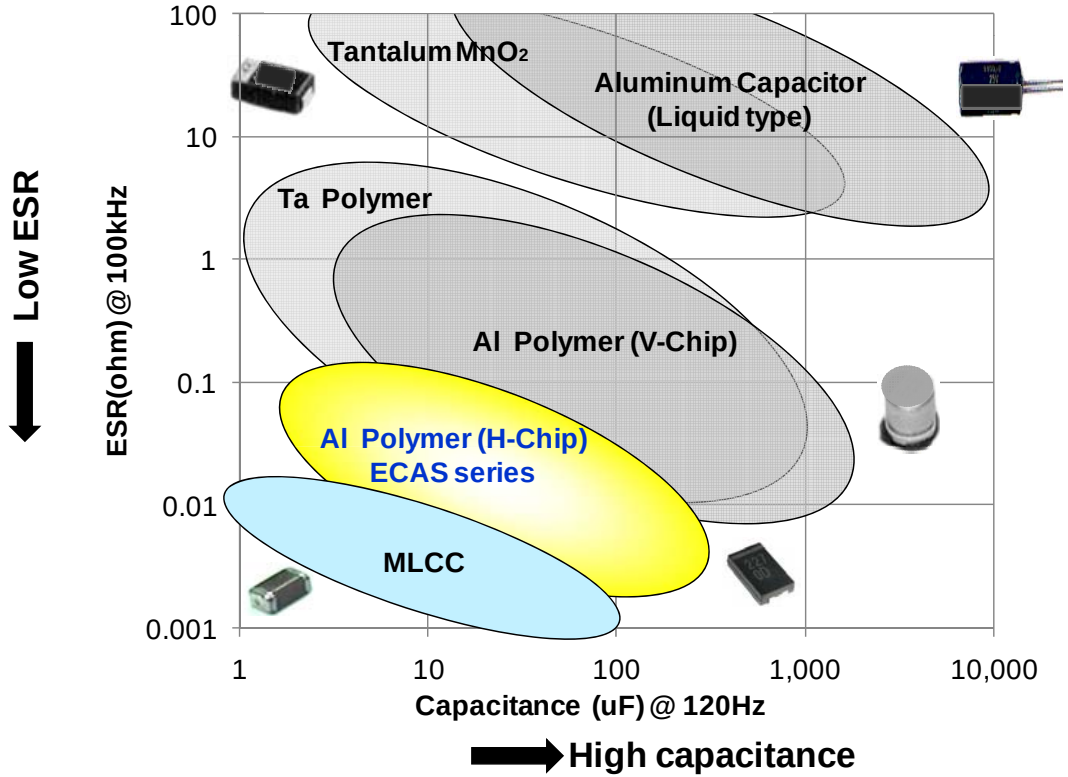
〈 **Cross-section** 〉



Murata Polymer Capacitor – Website FAQ

Q: What are the advantages of using polymer aluminum capacitors vs other non-ceramic technologies?

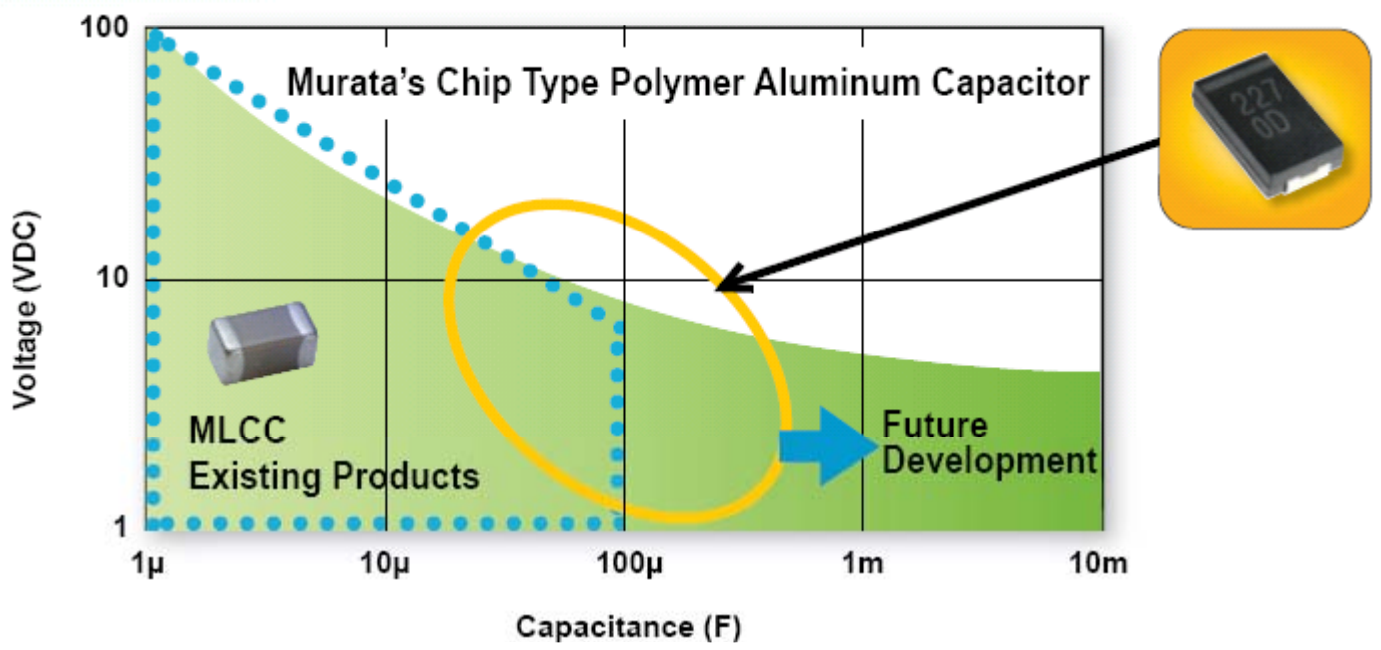
A: ESR and impedance of Murata's polymer capacitor are lower than other non-ceramic type capacitors because a multilayer structure design uses a conductive polymer for cathode; therefore, the ECAS series exhibits high performance for noise suppression, ripple absorption, and decoupling.



Murata Polymer Capacitor – Website FAQ

Q: What are the advantages of using polymer capacitors vs MLCC?

A: MLCCs offer the best overall solution in terms of size, volumetric capacitance, and low impedance. Polymer capacitors extend the high capacitance offering.

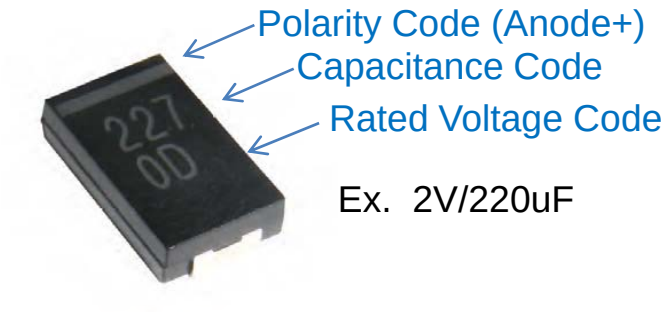


Murata Polymer Capacitor – Website FAQ

Q: Do polymer electrolytic capacitors have polarity?

A: Yes. Unlike MLCCs, polymer electrolytic capacitors have a marked polarity so proper placement on the PCB board is important.

〈 Polarity Marking 〉



Ex. 2V/220uF

Murata Polymer Capacitor – Website FAQ

Q: Can the ECAS series be used in AC circuits?

A: No, because these components have polarity.

Q: Is voltage derating required for ECAS capacitors?

A: No. Murata's ECAS capacitors can be used without voltage derating because the electrolytic formation voltage is higher during manufacturing.

Q: What is the operating temperature range of Murata's ECAS series?

A: Operating temperature range is: -40℃ to 105℃

Q: What is the capacitance and voltage range of the ECAS series?

A: Capacitance range is 6.8uF to 470uF
Rated voltage range is 2VDC to 16VDC

Q: Can the ECAS series be exposed to reflow and wave soldering environments?

A: The ECAS series can only be reflowed soldered. Please check our specifications for applicable profiles and conditions.

Murata Polymer Capacitor – Website FAQ

Q: Are there special handling and storage conditions required for the ECAS series?

A: No. The ECAS series are rated at MSL 3 and are packaged in special packaging and can be stored under normal warehouse conditions.

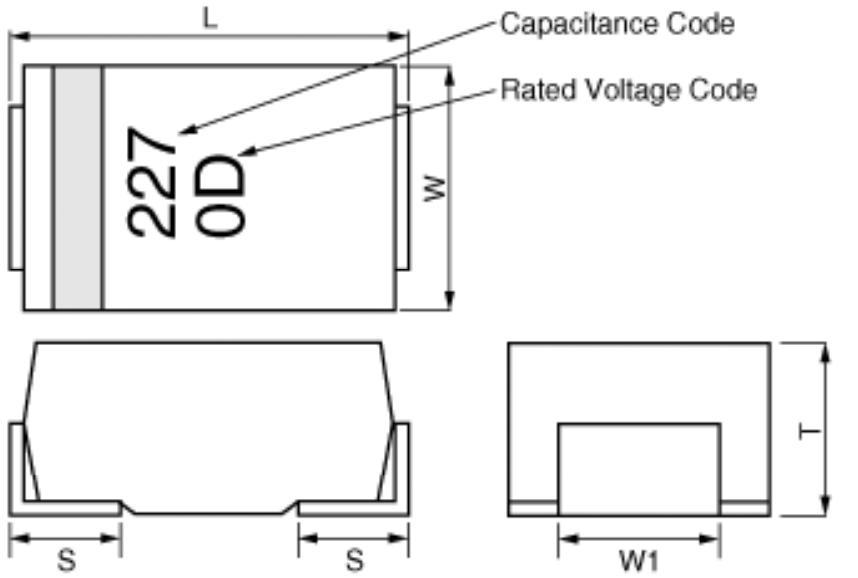
Q: Do polymer electrolytic capacitors experience the same capacitance changes under applied voltage like MLCCs?

A: No. Polymer electrolytic capacitors do not exhibit “dc bias” characteristics shown by class 2 or 3 (high K) MLCC.

Murata Polymer Capacitor – Website FAQ

Q: What is the average reel size of the ECAS series?

A: Case Size D4 (T=1.9mm/size is 3000pcs/reel @ 330mm)
Case Size D6 (T=2.8mm/size is 2500pcs/reel @ 330mm)
Case Size D9 (T=4.2mm/size is 2000pcs/reel @ 330mm)



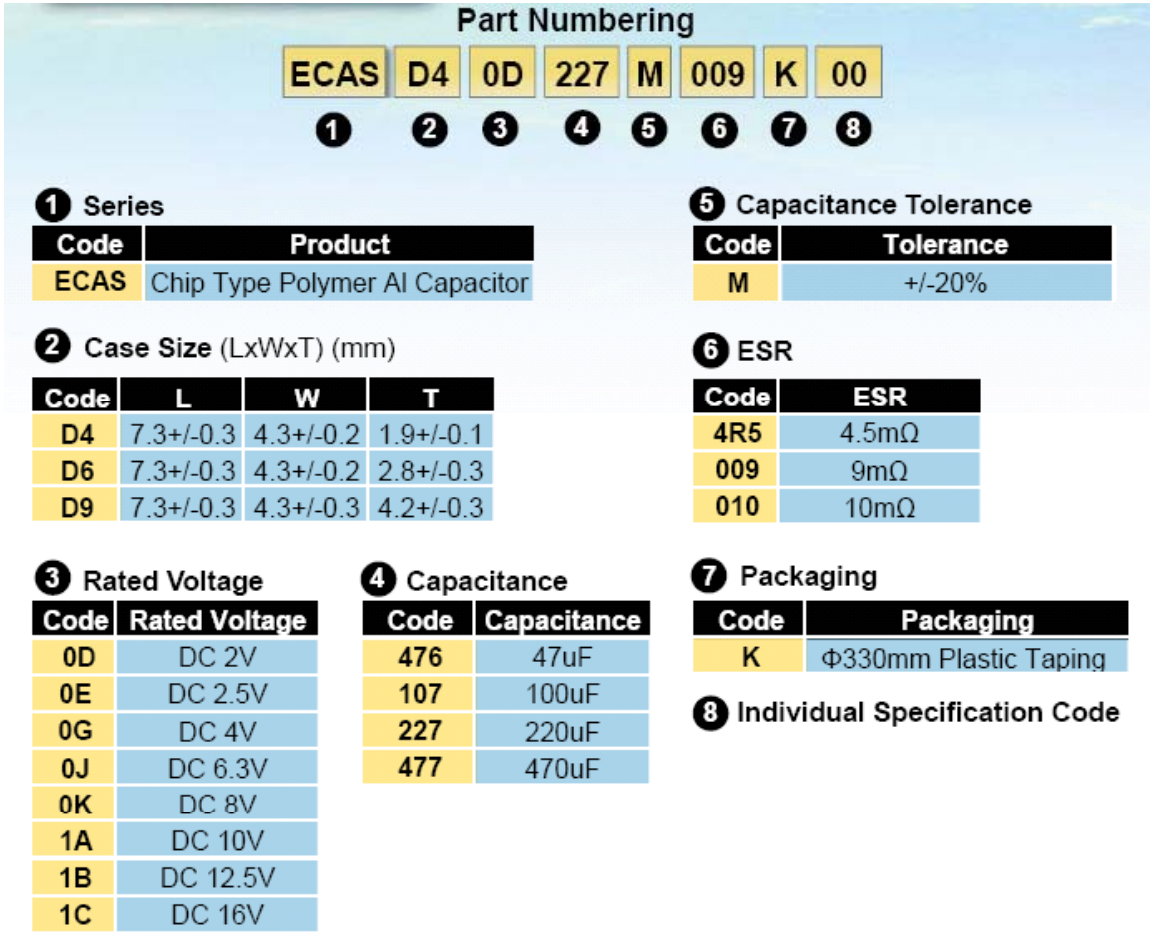
(in mm)

Part Number	L	W	T	W1	S
ECASD4	7.3 ±0.3	4.3 ±0.2	1.9 ±0.1	2.4 ±0.2	1.3 ±0.2
ECASD6	7.3 ±0.3	4.3 ±0.2	2.8 ±0.3	2.4 ±0.2	1.3 ±0.2
ECASD9	7.3 ±0.3	4.3 ±0.3	4.2 ±0.3	2.4 ±0.2	1.3 ±0.2

Murata Polymer Capacitor – Website FAQ

Q: Will the ECAS product continue to follow Murata's 18 digit global part numbering (GPN) system?

A: Yes. The ECAS series will follow Murata's conventional 18 digit GPN system.



Part Numbering

ECAS	D4	0D	227	M	009	K	00
①	②	③	④	⑤	⑥	⑦	⑧

① Series

Code	Product
ECAS	Chip Type Polymer Al Capacitor

② Case Size (LxWxT) (mm)

Code	L	W	T
D4	7.3+/-0.3	4.3+/-0.2	1.9+/-0.1
D6	7.3+/-0.3	4.3+/-0.2	2.8+/-0.3
D9	7.3+/-0.3	4.3+/-0.3	4.2+/-0.3

③ Rated Voltage

Code	Rated Voltage
0D	DC 2V
0E	DC 2.5V
0G	DC 4V
0J	DC 6.3V
0K	DC 8V
1A	DC 10V
1B	DC 12.5V
1C	DC 16V

④ Capacitance

Code	Capacitance
476	47uF
107	100uF
227	220uF
477	470uF

⑤ Capacitance Tolerance

Code	Tolerance
M	+/-20%

⑥ ESR

Code	ESR
4R5	4.5mΩ
009	9mΩ
010	10mΩ

⑦ Packaging

Code	Packaging
K	Φ330mm Plastic Taping

⑧ Individual Specification Code

Murata Polymer Capacitor – Website FAQ

Q: Why did Murata enter the polymer capacitor business after being in MLCCs for so long?

A: Our strategy and goal have been to become a complete capacitor solution provider.

Thank you for your interest in Murata Products.

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